

prophase or telophase. The spindle is a cytoplasmic structure; even the part within the limits of the nuclear membrane does not come from the network surrounding the nucleolus, but grows in from the outside.—CHARLES J. CHAMBERLAIN.

Illinois River sand region.—In connection with the work of the Illinois Biological Station on the Illinois River at Havana, a brief survey was made of certain waste sandy areas in the neighborhood. The botanical survey was made by H. A. GLEASON,¹⁶ whose results have now been published. The ecological factors of these peculiar areas are discussed, and four plant associations are presented. Under prairie formation the three associations are the "bunch-grass," the "blow-sand," and the "blowout;" while the single representative of the forest formation is the black-jack oak association. A list of the plants is given and the phytogeographic relationships are discussed.—J. M. C.

Sulfuric acid as a fungicide.—KRAEMER¹⁷ in experimenting with dilute sulfuric acid as a fungicide finds that solutions from 1 part to 500 to 1 part to 1000 are not injurious to ordinary field plants such as wild cherry, elder, ailanthus, yellow dock, abutilon, and others. Roses infected with mildew were sprayed several times with a solution of one part H₂SO₄ to 1000 water without injury and with the complete destruction of the mildew. This fungicide may prove especially useful in greenhouses where mildew is often very destructive to roses and where ordinary fungicides are not applicable since they spot and discolor the foliage.—H. HASSELBRING.

Chromosomes of *Oenothera*.—GEERTS¹⁸ finds 14 chromosomes in *Oenothera Lamarckiana*. In connection with a brief paper he figures several somatic divisions as well as the heterotypic mitosis in the microspore and megaspore mother cells. BEER¹⁹ found 14 chromosomes in *O. longiflora* and GATES²⁰ reported 14 in *O. lata*, but 20 or more in the *O. Lamarckiana* hybrid obtained from a cross of *O. Lamarckiana* with *O. lata*. GEERTS also notes the constricted shape of the chromosomes in the anaphase and telophase of mitosis.—R. R. GATES.

Secondary thickening in Pandanus.—SCHOUTE²¹ has investigated the alleged secondary growth in the stem of Pandanus, and comes to the same conclusion as

¹⁶ GLEASON, HENRY ALLAN, A botanical survey of the Illinois River valley sand region. Bull. Ill. State Lab. Nat. Hist. 7:149-194. 1907.

¹⁷ KRAEMER, HENRY, Dilute sulphuric acid as a fungicide. Proc. Amer. Phil. Soc. 45:157-163. 1906.

¹⁸ GEERTS, J. M., Ueber die Zahl der Chromosomen von *Oenothera Lamarckiana*. Ber. Deutsch. Bot. Gesells. 25:191-195. pl. 6. 1907.

¹⁹ BEER, RUDOLF, On the development of the pollen grain and anther of some Onagraceae. Beih. Bot. Centralbl. 19:286-313. pls. 3-5. 1905.

²⁰ GATES, R. R., Pollen development in hybrids of *Oenothera lata* × *O. Lamarckiana*, and its relation to mutation. BOT. GAZETTE 43:81-115. pls. 2-4. 1907.

²¹ SCHOUTE, J. C., Ueber die Verdickungsweise des Stammes von Pandanus. Ann. Jard. Bot. Buitenzorg II. 6:115-137. pls. 5-8. 1907.